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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,571	08/07/2001	Kenneth C. Goretta	0003/00950	3626

27197 7590 01/30/2003

CHERSKOV & FLAYNIK  
THE CIVIC OPERA BUILDING  
20 NORTH WACKER DRIVE, SUITE 1447  
CHICAGO, IL 60606

EXAMINER
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TRAN, LEN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 01/30/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 09/924,571	Applicant(s) GORETTA ET AL.	
Examiner Len Tran	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. Claim 8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 8, the recitation “the *heating* temperature is 0.5 to 0.7 the melting temperature of the lowest melting point constituent of the construct” is not clearly understood by the examiner, since there are no comparisons or indications of a higher or lower ranges. Is the heating temperature *lower or higher* than the melting point ?

As to claim 10, the term “inverse relationship” is vague, since pressure and temperature is conventionally known to be directly proportional to each other. In page 16 refers by applicant does not explain the indefiniteness.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 7-13 insofar as definite are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuhara et al (Re. 35,521), and further in view of Johns (US 6,168,071) and Chaim et al ("Joining of Alumina ceramics using nanocrystalline tape cast Interlayer").

Mizuhara et al disclose the method of joining two objects made up of certain sized particles comprising of compounds having particle size smaller than certain sized particles, applying the joining compound to opposing surfaces of the objects to be joined together, heating the joint (col. 4, lines 10-18).

Mizuhara et al fail to teach heating the joint to a temperature below the melting point of the lowest melting point constituent of the construct.

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However, Johns discloses the method of joining the objects by heating to a temperature below that of the solidus temperature of any one of the constituent materials of the element for the purpose of diffusion bonding (col. 2, lines 34-37).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to melt the joint to a temperature below the melting point of the lowest melting point constituent of the construct as taught by Johns, in Mizuhara et al in order to perform effective diffusion bonding.

Mizuhara et al also fail to teach applying a pressure of 500 to 45,000 psi to the objects, multiphase object, while the joint compound is in the opposing surface, and that the joint compound is applied to a thickness that is at least 5 times the dimension of the largest particles contains in the joint compound.

However, Chaim et al disclose the method of joining two ceramic parts, inherently having multiphase, and that the thickness of the interlayer is between 35 to 50 microns, wherein the larger grain size is 2 to 10 microns, resulting in a thickness at least 5 times the dimension of the largest particles, and that the pressure applied is 55Mpa (page 1726). Chaim et al disclose the above differences for the purpose of having a crack free microstructure at the joint.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide pressures between 500 and 45,000 psi and thickness at least 5 times the dimension of the largest particle as taught by Chaim et al, in Mizuhara et al in order to achieve crack free microstructure at the joint.

***Response to Arguments***

5. Applicant's arguments filed 12/27/02 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Mizuhara et al teaches applying the joining compound to opposing surfaces of the objects to be joined together and heating the joint. Mizuhara et al fail to teach heating the joint to a temperature below the melting point of the lowest melting point constituent of the construct. However, Johns discloses the method of joining the objects by heating to a temperature below that of the solidus temperature of any one of the constituent materials of the element for the purpose of diffusion bonding. Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to melt the joint to a temperature below the melting point of the lowest melting point constituent of the construct as taught by Johns, in Mizuhara et al in order to perform effective diffusion bonding.

Applicant disagrees that Johns teaches melting temperature and that would not be combinable with Mizuhara et al. However, Johns discloses the method of heating one of the constituent below the solidus temperature to allow diffusion bonding. Likewise, Mizuhara et al

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teaches brazing, which also joining one material to another, but not having a higher working temperature than the lowest melting temperature of the two components. Therefore, both references are combinable, since they have the same scope of invention. In addition, applicant did not claim anything to which *both surfaces are to be melted*, but instead have the same scope as Johns.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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*Inquiry*

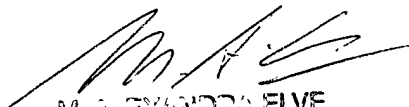
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Len Tran whose telephone number is (703)605-1175. The examiner can normally be reached on M-F, 8:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 703-308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3602 for regular communications and (703)305-3602 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

Len Tran  
Examiner  
Art Unit 1725

LT  
January 24, 2003

  
M. ALEXANDRA ELVE  
PRIMARY EXAMINER